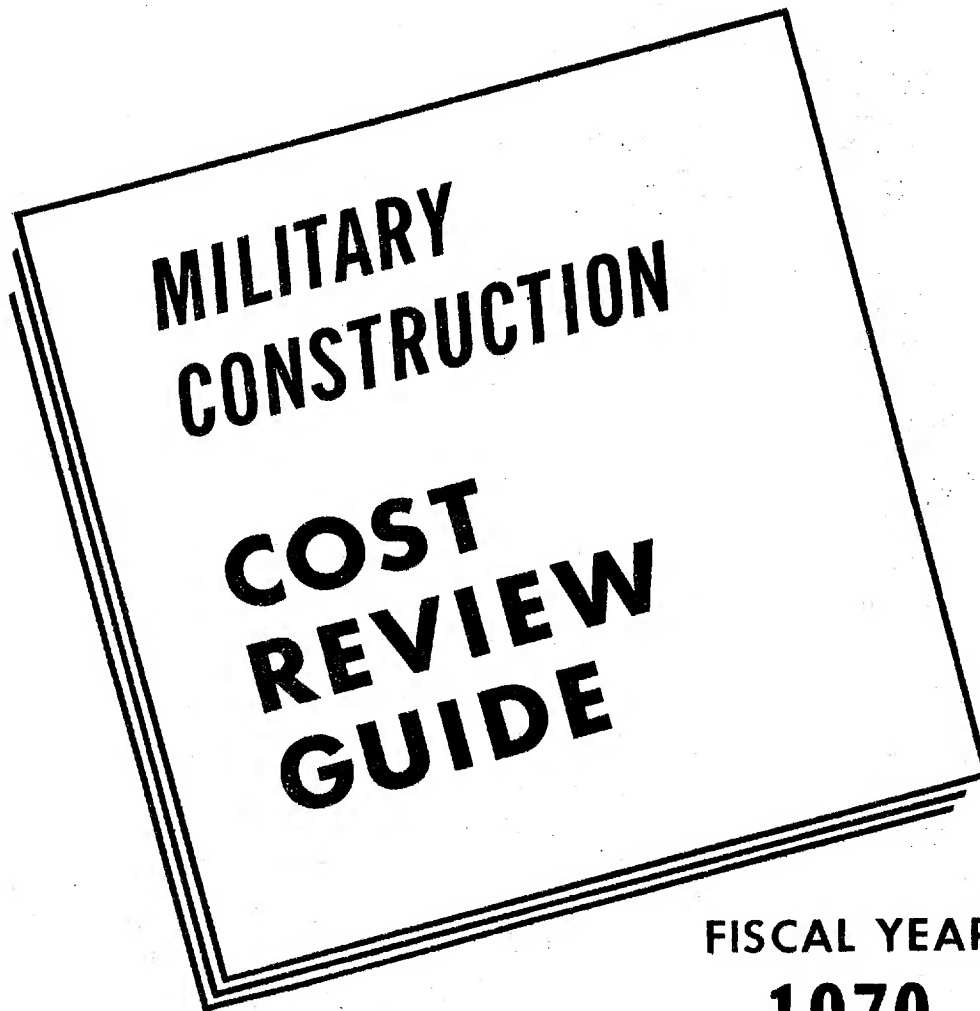




# DEPARTMENT OF DEFENSE



OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE  
PROPERTIES AND INSTALLATIONS

*Formula*

$$\text{Actual cost} \times \frac{1235}{509} = \text{new cost}$$

FY 1970 MILITARY CONSTRUCTION COST REVIEW GUIDE

The cost guidance presented in this booklet, which has been developed in coordination with the Military Departments, reflects military bid experience and cost trends of the construction industry, as well as other appropriate considerations, and is intended for internal use only within the Department of Defense in reviewing the FY 1970 Military Construction Program. The unit costs shown are estimates for selected repetitive-type permanent facilities, based on a cost index of 1.00 (e.g., Washington, D.C.); they are applicable to the structure to the five-foot line only, and do not include the cost of outside utilities and other site improvements, which should be computed for each project in accordance with the specific requirements of the individual sites.

<u>CONTENTS</u>	<u>PAGE</u>
Section 1 - Unit Costs for Repetitive-Type Facilities _____	2
Section 2 - Equipment Included In, and Excluded From, Construction Costs _____	5
Section 3 - Size/Unit-Cost Adjustment Chart _____	6
Section 4 - Construction Cost Indices _____	7

OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE (PROPERTIES & INSTALLATIONS)

FEBRUARY 1968

SECTION I - UNIT COSTS FOR REPETITIVE-TYPE FACILITIES

FACILITY	TYPICAL SIZE Gross Sq. Ft. or as Noted	C O S T L E V E L S		\$ PER SQ. FT. /1 /5
		Contract Cost Structure Only 20a /2	Total Cost Structure Only 20e /3	20e Cost Less Design 20p /4
1. ✓ ACADEMIC FACILITIES	25,000	19.00	23.00	21.75
2. ✓ ADMINISTRATIVE FACILITIES:				
Up to 3 Stories	15,000	19.95	24.15	22.85
Major Facilities, Over 3 Stories	150,000	21.80	26.35	24.95
Data Processing Areas (without shielding)		27.15	32.85	31.10
3. AIR TERMINAL BUILDINGS:				
Passenger	17,500	21.20	25.65	24.25
Freight	45,000	10.25	12.40	11.75
4. BACHELOR OFFICER QUARTERS, Without Dining Facilities:				
Grades W1 - O6	/5	17.45	21.10	20.00 /6
5. BANKS	1,900	21.40	25.90	24.50
6. BARRACKS, DORMITORIES:				
Grade E1 (recruit)	/5	15.30	18.50	17.50 /6
Grades E2 - E9	/5	15.95	19.30	18.25 /6
7. BOWLING FACILITIES:				
Building only	7,200 (8 lanes)	16.80	20.30	19.25
Manual Equipment, per lane				9,000
Automatic Equipment, per lane				13,400
8. CLUBS:				
Enlisted Service	16,000	21.05	25.45	24.10
Noncommissioned Officer	12,000	23.45	28.35	26.85
Officer	10,000	26.20	31.70	30.00
9. COMMISSARIES	15,000	16.75	20.25	19.20
10. EXCHANGE STORES:				
Without Cafeteria	12,000	18.40	22.25	21.05
With Cafeteria	21,000	20.25	24.50	23.20
11. FIRE & CRASH STATIONS	8,000	19.95	24.15	22.85
12. FLIGHT SIMULATOR BUILDINGS	12,000	23.40	28.30	26.80
13. GUARD HOUSES, BRIGS	6,000	24.00	29.05	27.50
14. ✓ GYMNASIUMS	20,000	18.45	22.30	21.10
15. HANGARS, GENERAL-PURPOSE OR MAINTENANCE	50,000	18.15	21.95	20.80
16. ✓ LIBRARIES	4,800	19.65	23.75	22.50
17. ✓ MEDICAL FACILITIES:				
Hospitals: Up to 199 beds		32.25	37.95	36.00
Over 199 beds		31.30	36.80	35.00
Light-Care Units (separate)	18,000	23.80	28.00	26.50
Dispensaries	8,000	29.90	35.15	33.50

17. MEDICAL FACILITIES (Cont'd):				
Dental Clinics: Up to 9 DOR's	34.60	40.70	38.50	
10 to 17 DOR's	34.10	40.10	38.00	
Over 17 DOR's	33.65	39.55	37.50	
18. MESSHALLS, DINING FACILITIES, ENLISTED:				
w/2 to 4-day storage	15,000	26.35	31.85	30.15
w/7 to 14-day storage	16,000	29.05	35.15	33.25
19. ✓ MESSHALLS, DINING FACILITIES, OFFICERS				
6,000	30.10	36.40	34.45	
20. OPERATIONS BUILDINGS, AIRCRAFT:				
With Tower	13,000	30.40	36.75	34.30
Without Tower	10,000	25.00	30.25	28.60
21. ✓ PHOTOGRAPHIC LABORATORIES				
2,400	32.05	38.75	36.70	
22. POST OFFICES				
3,750	20.00	24.75	22.90	
23. READINESS CREW BUILDINGS				
23,000	22.10	26.75	25.30	
24. RECREATIONAL WORKSHOPS:				
Arts and Crafts	3,400	18.25	22.00	20.90
Automotive	2,000	20.60	24.90	23.60
25. RELIGIOUS FACILITIES:				
Chapel	8,000	28.45	34.40	32.55
Relig. Education Facil.	4,000	22.35	27.05	25.60
26. ✓ RESERVE TRAINING FACILITIES				
20,000	18.35	22.20	21.00	
27. SHOPS:				
Automotive Maintenance	5,000	19.20	23.22	22.00
Armament & Electronics, aircraft	12,000	18.35	22.20	21.00
Installations Maintenance	15,000	16.45	19.90	18.85
Parachute & Dinghy	8,000	24.35	29.45	27.90
Rocket Assembly & Checkout	5,000	25.55	30.90	29.25
28. ✓ STORAGE FACILITIES:				
Auto Garages with heat	20,000	13.05	15.80	14.95
Auto Garages without heat	20,000	12.10	14.65	13.85
Cold Storage Facilities	6,000	31.45	38.05	36.00
Genl.-Purpose Warehouses	50,000	7.85	9.50	9.00
29. SWIMMING POOLS, OUTDOOR:				
82'-2" x 63'-0"	5,176	18.15	21.95	20.75
164'-4" x 54'-0"	8,874	16.60	20.05	19.00
164'-4" x 75'-0"	12,325	15.00	18.15	17.15
30. TELEPHONE EXCHANGES				
6,000	25.95	31.40	29.70	
31. THEATERS, with stage and seats				
10,000	25.90	31.35	29.65	

## EXPLANATORY NOTES:

- The unit costs shown do not include the cost of piles or other special foundations which, when required, will be considered as an additional supporting item, but do include the cost of air conditioning to the extent authorized by Construction Criteria Manual DOD 4270.1-M. All unit costs are based on a construction cost index of 1.00, and are rounded to the nearest five cents, except the 20p cost for medical facilities, which is rounded to the nearest 50 cents.

2. The 20a cost level represents the estimated contract unit price for the facility complete to the five-foot line, including appropriate equipment as indicated in Section 2.
3. The 20e cost level represents the estimated total unit cost to the Government for the complete facility to the five-foot line, computed in accordance with the instructions shown on DD Form 813 (see Construction Criteria Manual DOD 4270.1-M). With the exception of costs for medical facilities, which were established in collaboration with the Bureau of the Budget, the 20e costs have been computed by successively marking up the 20a cost by 8% for contingencies and 6% for engineering, supervision, inspection, and administration; and adding 6% of the sum of the 20a cost plus contingencies, for design:  $(20a \text{ cost} \times 1.08 \times 1.06) + (20a \text{ cost} \times 1.08 \times .06)$ .
4. The 20p cost level, which is not employed by DD Form 813, represents the unit cost used in pricing the Military Construction Program. It is the 20e cost less design:  $20a \text{ cost} \times 1.08 \times 1.06$ . The 20p cost will be used in determining conformance with the Congressional cost limitations listed in Note 6 below.
5. Unit costs may be adjusted for various facility sizes and geographical locations through application, respectively, of the chart in Section 3 and the indices in Section 4; except that unit costs for bachelor officer quarters and barracks will be adjusted for geographical location only (see also Note 6 below).
6. The following cost limitations, subject to Congressional approval, will be applicable to facilities to be constructed in the United States less Alaska (but including Hawaii), regardless of size of geographical cost index:
  - Bachelor Officer Quarters -- \$10,500 per officer (male or female)
  - Barracks, Dormitories -- \$ 3,500 per enlisted person (male or female)
  - Cold Storage Facilities -- \$ 36 per sq. ft.
  - General-Purpose Warehouses -- \$ 9 per sq. ft.

SECTION 2 - EQUIPMENT INCLUDED IN, AND EXCLUDED FROM, CONSTRUCTION COSTS

INCLUDED: Normally, the costs of all items of equipment which are permanently built in, or attached, to the structure, including items with fixed utility connections, are included in the construction costs shown in Section 1. The following items are typical examples:

- |  |   |  |
|--|---|--|
| -Furniture, cabinets, and shelving, built-in | -Pneumatic tube systems                                   | -Hoods and vents   |
| -Venetian blinds & shades                    | -Heating, ventilating, and air-conditioning installations | -Refrigerators and reefers, built-in                         |
| -Window screens, and screen doors            | -Electrical generators and auxiliary gear                 | -Laboratory furniture, built-in                              |
| -Elevators and escalators                    | -Waste disposers such as incinerators                     | -Cranes and hoists, built-in                                 |
| -Drinking-water coolers                      | -Food preparation and serving equipment, built-in         | -Chapel pews and pulpits                                     |
| -Telephone, fire alarm and intercom systems  | -Dishwashers  | -Bowling lanes, including seating and pin-spotting equipment |
| -Protective construction features            | -Theater seats  |  |

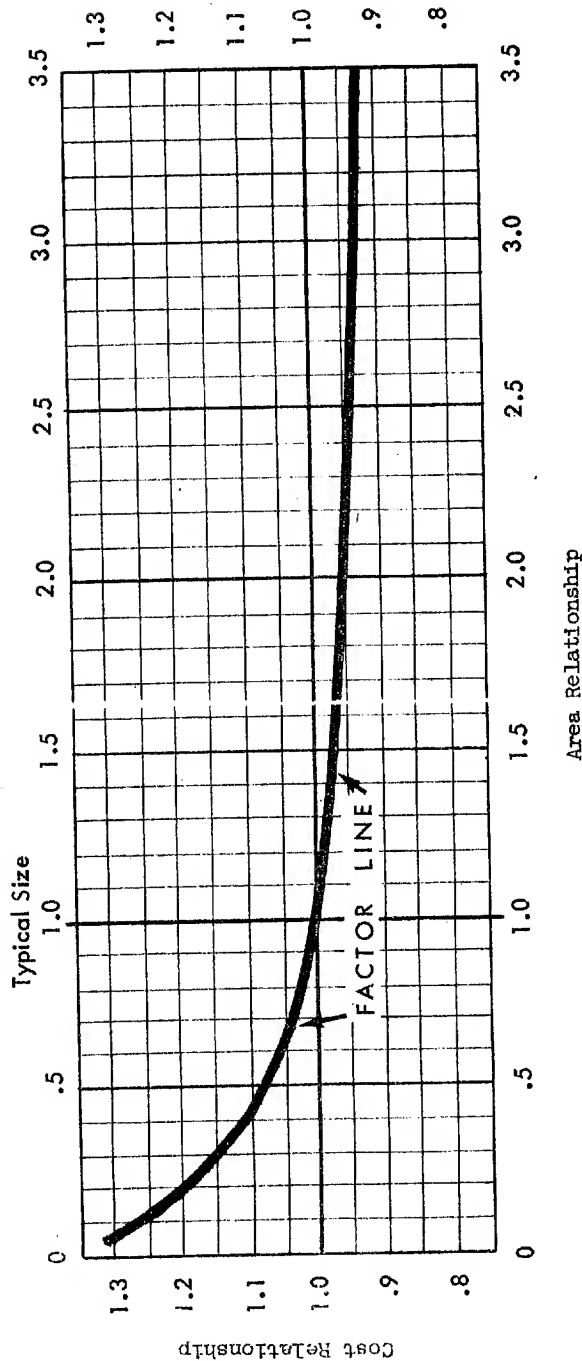
Exceptions: Permanently attached technical, scientific, production, and processing equipment; see below.

EXCLUDED: Normally, the costs of all items of equipment, including furniture and furnishings, which are loose, portable, or can be detached from the structure without tools, are excluded from the construction costs shown in Section 1. In addition, the costs of permanently attached equipment related directly to the operating function for which the structure is being provided, such as technical, scientific, production, and processing equipment, are normally excluded from these costs. The following items are typical examples:

- |   |   |
|---|---|
| -Furniture, loose   | -Photographic equipment, portable   |
| -Furnishings, including rugs; loose                                     | -Communications equipment   |
| -Filing cabinets and portable safes                                     | -Dental chairs and pedestal units   |
| -Office machines, portable  | -Shop equipment   |
| -Wall clocks, plug-in   | -Any operational equipment for which installation mountings and connections are provided in the building design, and which are detachable without damage to the building or equipment |
| -Food preparation and serving equipment, including appliances; portable |   |
| -Training aids and equipment, including simulators                      |   |
| -Automatic data-processing equipment                                    |   |

SPECIAL CONSTRUCTION CATEGORIES: Medical and Dental Facilities: See "Construction and Materiel Schedule for Military Medical and Dental Facilities" (Army: TB 700-1; Navy: NAVFAC P-268; Air Force: AFM 160-15). Family Housing: See Chapter 14, "Construction Criteria Manual DOD 4270.1-M."

SECTION 3 - SIZE/UNIT-COST ADJUSTMENT CHART



HOW TO USE: To determine the adjusted unit cost of a building whose size is greater or smaller than the Typical Size shown in Section 1:

1. Divide gross area of proposed building by Typical Size as shown in Section 1, locate quotient (Area Relationship) on the abscissa scale, and trace vertically to the Factor Line, thence horizontally to the ordinate scale, reading the Cost Relationship.
2. Multiply the Cost Relationship figure thus obtained by the desired Cost Level unit cost for the proposed building as shown in Section 1, to determine the adjusted unit cost for the proposed building.

SECTION 4 - CONSTRUCTION COST INDICES

The cost indices shown below represent approximate geographical adjustment factors which are applicable to costs of the FY 1970 Military Construction Program.

These cost indices are applicable to the construction of repetitive-type facilities, such as administration buildings, dining facilities, clubs, fire stations, and gymnasiums, which make maximum use of local skills, materials, methods and equipment. For more complex construction, such as communications facilities, power plants, laboratories and similar more technical facilities, these indices should be increased appropriately.

## CONTERMINOUS UNITED STATES

STATE	EXCEPTIONS	INDEX
ALABAMA		.90
	Gulf Coast Area	.95
ARIZONA		1.00
	Fort Huachuca	1.20
	Phoenix, Tucson, Yuma	1.10
ARKANSAS		1.00
	Little Rock	1.05
CALIFORNIA		1.10
	Desert Areas, San Francisco Bay Area, Two Rock Ranch Station	1.20
	San Clemente, San Nicolas, and Santa Cruz Islands	1.70
COLORADO		1.05
CONNECTICUT		1.10
	New London	1.15
DELAWARE		1.05
	Dover	1.10
DISTRICT OF COLUMBIA		1.00
FLORIDA		.95
	Orlando	1.00
	Cape Kennedy, Key West	1.15
GEORGIA		.90
IDAHO		1.10
	Mt. Home AFB	1.20
ILLINOIS		1.10
	Scott AFB, Granite City	1.15
INDIANA		1.05
	Bakalar AFB, Bunker Hill AFB	1.10
IOWA		1.00
KANSAS		1.05
KENTUCKY		1.00
	Fort Knox	1.05
LOUISIANA		.95
	Lake Charles	1.05
MAINE		1.10
	Far Northern Area	1.25
MARYLAND		1.00
	Andrews AFB, Bainbridge, Cheltenham	1.05
	Ft. Ritchie, Indian Head	1.10
	Patuxent River ATC	1.05
MASSACHUSETTS		1.10
	Ft. Devens	1.15
	Martha's Vineyard	1.25
	Nantucket	1.60
MICHIGAN		1.10
	Northern Area	1.20
MINNESOTA		1.10
	Northern Area	1.15
MISSISSIPPI		.90
	Gulf Coast Area, Meridian	.95



MISSOURI	Ft. Leonard Wood	1.10
		1.25
MONTANA	Glasgow AFB (Nashua)	1.10
	Malmstrom AFB (Great Falls)	1.25
		1.15
NEBRASKA		1.05
NEVADA	Fallon, Hawthorne	1.10
		1.15
NEW HAMPSHIRE		1.05
NEW JERSEY	Newark Area	1.15
		1.20
NEW MEXICO	Cannon AFB	1.00
		1.05
NEW YORK	New York City & Western Long Island	1.15
	West Point	1.25
		1.30 -
NORTH CAROLINA		.95
NORTH DAKOTA	Grand Forks, Minot	1.10
		1.25
OHIO	Cincinnati, Columbus	1.10
	Lockbourne AFB, Newark AFS	1.05
	Clinton County AFB, Wright-Patterson AFB	1.15
		1.20
OKLAHOMA		1.00
OREGON		1.05
PENNSYLVANIA	Philadelphia, Pittsburgh	1.05
		1.10
RHODE ISLAND		1.10
SOUTH CAROLINA	Charleston, Ft. Jackson	.95
		1.00
SOUTH DAKOTA	Ellsworth AFB	1.10
		1.15
TENNESSEE		.95
TEXAS		.95
UTAH	Dugway Proving Grounds	1.00
		1.20
VERMONT		1.05
VIRGINIA	Area adjacent to D. C., Ft. Eustis, Ft. Lee, Yorktown	1.00 ✓
	Dahlgren, Vint Hill Farms, and Dismal Swamp Area	1.00 ✓
		1.05
WASHINGTON STATE	Puget Sound Area	1.05
		1.10
WEST VIRGINIA	Sugar Grove	1.00
		1.05
WISCONSIN		1.10
WYOMING		1.05

## LOCATIONS OUTSIDE CONTERMINOUS UNITED STATES

NOTE: In balance of payments areas, these indices are applicable to normal construction procedures only.

## States, Territories, and Possessions of the United States

LOCATION	INDEX
ALASKA:	
Aleutian Islands	3.0
Adak	3.0
Attu	3.0
Cold Bay	2.5
Dutch Harbor	3.1
Shemya	

Anchorage	1.7
Barter Island, North Coastal Area	3.6
Clear AFS	1.9
Coastal Area, North of Aleutians	3.5
Eielson AFB	1.9
Elmendorf AFB	1.7
Fairbanks	1.9
Fort Greely (Big Delta)	2.2
Inland Area, North of Aleutians	4.0
Juneau	1.8
Kenai Peninsula	2.1
Kodiak	2.5
Kotzebue	2.4
Naknek	2.1
Nome	2.3
Northway, Highway Area	2.3
Point Barrow	3.5
Remote Interior Areas: Fort Yukon	2.6
Ft. Wainwright (Ladd)	1.9
Whittier	1.9
CANAL ZONE	1.3
HAWAII:	
Oahu: Honolulu Area	1.3
Other Areas	1.4
Kauai: Coastal Areas	1.6
Mountainous Areas, Barking Sands	1.8
Other Islands	1.6
JOHNSTON ISLANDS	2.0
LINE ISLANDS: Palmyra	2.0
MARIANA ISLANDS: Guam	1.8
Saipan and Tinian	2.0
MARSHALL ISLANDS: Bikini, Eniwetok, Kwajalein, Majuro	2.4
Meck	2.8
MIDWAY ISLAND	2.2
PUERTO RICO: San Juan Area	1.4
Roosevelt Roads Area	1.5
SAMOA	2.2
VIRGIN ISLANDS	1.3
WAKE ISLAND	2.2

Foreign Countries

<u>COUNTRY</u>	<u>INDEX</u>
ADMIRALTY ISLANDS	2.2
AFGHANISTAN	1.5
ALGERIA	1.3
ARGENTINA	1.9
ASCENSION ISLAND	2.5
AUSTRALIA: South Coastal Areas	1.1
North Coastal Areas	2.3
AZORES	1.1
BAHAMA ISLANDS	1.5
BELGIUM	1.0
BERMUDA	1.6
BOLIVIA	1.7
BRAZIL	1.5
BRITISH GUIANA	1.2
BRITISH HONDURAS	1.0
BRITISH WEST INDIES: Antigua	1.4
Barbados and Trinidad	1.2
BURMA	1.4

CANADA:	1.8
Newfoundland:	1.3
Argentia	2.2
Harmon AFB	1.4
Inland Areas	0.9
Labrador	3.5
Montreal	1.6
North Inland Areas (Dew Line)	2.0
South Inland Areas	1.1
CAROLINE ISLANDS: Truk	1.5
CEYLON	2.2
CHILE	1.3
CHRISTMAS ISLANDS	1.0
COLOMBIA	1.3
COSTA RICA	1.3
CUBA: Guantanamo Bay	1.5
DENMARK	1.0
ECUADOR	0.9
EL SALVADOR	0.6
ETHIOPIA: Eritrea	1.1
FORMOSA (Taiwan)	1.2
FRANCE	1.2
FRENCH GUIANA	1.1
GERMANY, WEST	4.0
GREECE	3.5
GREENLAND:	3.1
Ice Cap	3.5
Narsarsuak	1.0
Sondrestrom AFB	3.0
Thule	0.9
GUATEMALA	0.9
ICELAND	0.9
INDIA: Bombay	1.3
IRAN: Tehran	1.0
IRAQ	1.2
ITALY	1.0
JAMAICA	1.0
JAPAN:	1.10
Northern Area	0.9
Wakkanai	0.8
Southern Area	0.8
KOREA	0.8
LAOS	1.1
LIBERIA	0.9
LIBYA: Tripoli	1.0
LUXEMBOURG	1.0
MEXICO: Mexico City	0.8
MOROCCO	0.8
NETHERLANDS: Amsterdam	1.0
NEW ZEALAND	1.4
NICARAGUA	1.2
NORWAY	1.6
PAKISTAN: West Karachi	1.5
PARAGUAY	1.1
PERU	1.0
PHILIPPINE ISLANDS	1.5
RYUKYU ISLANDS: Okinawa	1.2
SAUDI ARABIA: Dhahran	1.0
SOMALILAND	1.2
SPAIN	1.2
SURINAM (Netherlands Guiana)	1.5
SWEDEN	1.8
THAILAND:	
Bangkok, Sattahip	
Other Areas	

*not so*

TURKEY	1.1
UNITED KINGDOM:	1.0
England and Wales	1.0
Ireland	1.1
Scotland	1.6
URUGUAY	1.3
VENEZUELA	
VIETNAM:	2.2
Saigon Area	2.5
Other Areas	2.2
VOLCANIC ISLANDS: Iwo Jima	

ESTIMATED COOLING COSTS

1. AIR CONDITIONING - COST PER TON

Type Facility	New Construction		Existing Building	
	Package Unit 10 Tons and Under	11 Tons and Over	Package Unit 10 Tons and Under	11 Tons and Over
Clean Rooms		\$1,300		\$1,400
Communications, Data Processing	\$ 850	900	\$ 900	1,000
Laboratories, Medical Facilities	850	1,000*	900	1,050
Officers' Quarters, Dormitories, Administrative, Morale, Recreation, Others	850	900	900	950

2. EVAPORATIVE COOLING - 30 Air Changes/Hr. \$0.55 per CFM

3. MECHANICAL VENTILATION - 30 Air Changes/Hr.

Buildings with minimum ductwork \$0.15 per CFM\*\*

Buildings with extensive ductwork \$0.30 per CFM

\*\*Gymnasiums, warehouses, etc.

\*Costs of air conditioning for laboratories should be adjusted appropriately for highly sophisticated systems.

1. Use the above costs for the conterminous U.S. without adjustment by geographical cost factor.
2. In overseas areas where international balance of payments is not a factor, the above costs adjusted by the geographical cost factor will be used.
3. Costs are for complete air conditioning systems including refrigeration, cycle air handling equipment, water saving devices, ductwork, piping, controls, cutting and patching, electrical work, supervision, inspection and overhead. Electrical work does not include transformers but assumes a power supply with sufficient capacity and/or proper voltage within 5 feet of buildings.